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1895-1896 Course Catalog

University of Montana--Missoula. Office of the Registrar

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THE
First Annual Register
OF THE
University of Montana
Missoula, Montana.

1895-96.

With an outline of the Course of Study and the
Departments of Instruction for

1896-97.

HELENA, MONTANA:
STATE PUBLISHING COMPANY,
STATE PRINTERS AND BINDERS.

COLLEGE CALENDAR FOR 1896-97.

1896.

Entrance Examination begins Monday, September 14.
First Semester begins Wednesday, September 16.
Thanksgiving Vacation begins Wednesday, November 25, 12 M.
Thanksgiving Vacation ends Monday, November 30, 10:15 A. M.
Christmas Holidays begin Friday, December 18.

1897.

Christmas Holidays end Tuesday, January 5, 8:45 A. M.
First Semester ends Friday, February 5.
Second Semester begins Monday, February 8.
Second Semester closes Wednesday, June 9.

CALENDAR FOR 1896-97.

Session Days Indicated by Bold-faced Figures.

July to December, 1896.

JULY							AUGUST							SEPTEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
			1	2	3	4							1			1	2	3	4	5	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
12	13	14	15	16	17	18	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
26	27	28	29	30	31		23	24	25	26	27	28	29	27	28	29	30				
							30	31													
OCTOBER.							NOVEMBER							DECEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3	1	2	3	4	5	6	7			1	2	3	4	5	
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	
25	26	27	28	29	30	31	29	30						27	28	29	30	31			
January to June, 1897.																					
JANUARY							FEBRUARY							MARCH							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
					1	2		1	2	3	4	5	6			1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	
24	25	26	27	28	29	30	28							28	29	30	31				
31																					
APRIL							MAY							JUNE							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
				1	2	3							1			1	2	3	4	5	
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30				
							30	31													

THE MONTANA STATE BOARD OF EDUCATION.

EX-OFFICIO.

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H. J. HASKELL, Attorney General.

E. A. STEERE, Supt. Public Instruction, Secretary.

APPOINTED.

R. G. YOUNG, Helena.....	Term Expires February 1st, 1899
O. F. GODDARD, Billings.....	“ “ “ “ 1899
JAMES REID, Bozeman.....	“ “ “ “ 1900
J. A. BAKER, Butte.....	“ “ “ “ 1900
J. E. MORSE, Dillon.....	“ “ “ “ 1897
T. E. COLLINS, Great Falls.....	“ “ “ “ 1897
J. M. HAMILTON, Missoula.....	“ “ “ “ 1898
H. H. GRANT, Grantsdale.....	“ “ “ “ 1898
CAMERON C. WYLIE, Helena..... Clerk of the Board

EXECUTIVE COMMITTEE OF THE STATE UNIVERSITY.

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T. C. MARSHALL.....	Missoula
HIRAM KNOWLES.....	Missoula

THE FACULTY.

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Professor of History and Literature.

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MISS CYNTHIA ELIZABETH REILEY, B. S.

Professor of Mathematics.

W. M. ABER, A. B.

Professor of Latin and Greek.

FRED C. SCHEUCH, B. M. E., A. C.

*Professor of Modern Languages and Temporarily in charge of the
Department of Mechanical Engineering.*

MARY OLIVE GRAY,

Instructor in Music.

T. B. LANDERS,

Assistant in Chemical Laboratory.

ELOISE KNOWLES,

Assistant in Preparatory English.

NELLIE R. BOYD,

Assistant in Preparatory History.

MARY A. CRAIG, B. S.

Librarian.

THE FACULTY

DR. ALBERT A. M. DE WITT

DR. J. H. BROWN

DR. J. H. BROWN

DR. J. H. BROWN

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The University and its Endowment.

The University of Montana was created by an Act of the Montana State Legislature, approved February 17th, 1893. The following extracts give the title of the act; and also certain sections that indicate the purpose of the University and the scope of its work.

“An act to establish, locate, maintain, and govern the University of the State of Montana.

Section 1. “There is hereby established, in this State at the City of Missoula, an institution of learning under the name and style of the University of Montana.”

Section 6. “The object of the University of Montana shall be to provide the best and most efficient manner of imparting to young men and young women, on equal terms, a liberal education and thorough knowledge of the different branches of Literature, Science, and the Arts, with their varied applications; and to this end there shall be established the following colleges or departments, to-wit:—

First—A Preparatory Department.

Second—A Department of Literature, Science and the Arts.

Third—Such professional and technical colleges as may from time to time be added to or connected therewith.

The Preparatory Department may be dispensed with at such rate and in such wise as may seem just and proper to the State Board of Education.”

Section 7. "Such duties or courses of Instruction shall be pursued in the Preparatory Department as shall best prepare the students to enter any of the regular colleges or departments of the University.

"The college or department of Literature, Science, and the Arts shall embrace courses of instruction in Mathematical, Physical and Natural Sciences with their applications to the Industrial Arts; a liberal course of instruction in the Languages, Literature, History, Philosophy, and such other branches as the State Board of Education may prescribe. And, as soon as the income of the University will allow, and in such order as the demands of the public seem to require, the said courses of instruction in the Sciences, Literature, and the Arts shall be expanded into distinct colleges or departments of the University, each with its own Faculty and appropriate title."

Section 9. "Tuition shall ever be free to all students who shall have been residents of the State for one year next preceding their admission; except in the Law and Medical Departments, and for extra studies. The State Board of Education may prescribe rates of tuition for any student in the law or medical department, or who shall not have been a resident as aforesaid, and for teaching such studies."

ENDOWMENT.

Section 11. "For the support and the endowment of the University there is annually and perpetually appropriated

"First—The University Income Fund and all other sums of money appropriated by law to the University Income Fund.

"Second—All tuition and matriculation fees.

"Third—All such contributions as may be derived from public or private bounty.

“Section 10. Any person contributing a sum not less than fifteen thousand (\$15,000) dollars shall have the privilege of endowing a professorship in the University, or any department thereof, the name and object of which shall be designated by the State Board of Education.”

The University Income Fund arises from the rental of 46,080 acres of land which was granted by Act of Congress, February 18, 1892. The following extract from a recent report of the State Board of Education shows the condition of this fund:

“All this land has been selected and set aside for the purposes designated in the Act. Most of these lands were selected some ten or twelve years ago by State Agent R. H. Howey and comprise some of the best lands in the State. They are already very valuable and will continually become more so. Under the efficient management of the present State Board of Land Commissioners none of these lands have been sold, but much has been leased at a good rental. This land was granted by the Federal Government upon condition that the proceeds from sale should be kept as a permanent University fund; and only the income from leases of land and interest of money loaned can ever be used for maintaining the University.”

In accordance with the legal provisions above quoted, the State Board of Education fitted up a building, selected a Faculty, and made the necessary arrangements for the opening of the University on Wednesday, September 11, 1895.

EQUIPMENT OF THE UNIVERSITY.

UNIVERSITY GROUNDS.

The University Grounds, comprising forty acres of excellent land, are on the south side of the Missoula river just where it leaves Hell Gate canon to enter the beautiful Missoula valley. The outlook is to the west, the mountain slope being in the rear. In the foreground and to the right, lying on both sides of the river, is the city of Missoula; but the view extends uninterrupted for many miles down the valley. On the left is the Bitter Root valley with Mt. Lo Lo in the distance. On the right and beyond the river are Mt. Jumbo and the canon of the Rattlesnake. This river affords the waterworks with an unlimited supply of water remarkable for its purity and clearness.

The citizens of Missoula have fenced the grounds, planted shade trees, and supplied them with water without expense to the State.

BUILDINGS.

The elegant and commodious South Side Public School building, erected and completed at a cost of about \$19,000, has been turned over to the State Board of Education for the free use of the University for a period of two years, or until University Buildings can be constructed.

This University Building is located in South Missoula, and is easy of access from all parts of the city, as there are excellent sidewalks, and the street car line has been extended to it.

The building is a modern brick structure containing three stories and a basement.

The first floor contains the lecture rooms in Mathematics, Greek and Latin, Modern Languages, History and Literature, and the President's office. These lecture rooms are fitted with excellent desks and supplied with blackboards, maps, charts and other illustrative material.

On the second floor is found the Library, Chemical Laboratory, Physical Laboratory, and Biological Laboratory, The equipment of these is given in another place.

The third floor is the Assembly room. This has a seating capacity of about 300 and is provided with rostrum, chairs, piano, and individual desks enough to accommodate the present attendance of students.

The heating apparatus, lavatories, and lunch rooms are in the basement. After taking the room necessary for the accommodation of these there is left a floor space of 24 feet by 52 feet which has been fitted up for a laboratory for shop practice, in bench work in wood, turning, pattern making, etc. The tables for Mechanical Drawing have been placed temporarily in the lecture room of the Department of Modern Languages.

THE LIBRARY.

This is a well lighted room situated on the second floor, and is provided with cases for books and periodicals, and a newspaper rack.

There are at present in the library 1,360 volumes, exclusive of pamphlets and periodicals. So far the library contains but little except that material most needed for reference in the work already in progress in the University. This list, for the most part, includes Dictionaries, Encyclopedias, Histories, standard works in Literature, Science Politics, Philosophy and Economics.

The following periodicals are on file:

The Forum.
The Popular Science Monthly.
Harper's Weekly.
Harper's Monthly Magazine.
The North American Review.
The Atlantic Monthly.
The Cosmopolitan.
Montana Educator.
The Scientific American.
Political Science Quarterly.
Ladies' Home Journal.
American Journal of Psychology.
The Rockies.
The Independent.
The Dial.
The Century Magazine.
Review of Reviews.
Scribner's Magazine.
The Chautauquan.

The following Newspapers are on file and are for the most part donated by their respective publishers:

The Daily Missoulian, Missoula.
The Bitter Root Times, Hamilton.
The Anaconda Standard, Anaconda.
The Western News, Hamilton.
The Montanian, Thompson Falls.
The Evening Republican, Missoula.
The Troy Times, West Troy.
The Plainsman, Plains.
Montana Silverite, Missoula.
Flathead Herald-Journal, Kalispell.
The Columbian, Columbia Falls.
Helena Independent, Helena.
The Citizens Call, Philipsburg.
The Montana Mining Area.
The Darby Sentinel.
The Inter-Lake, Kalispell.
The Tribune, Butte.
The Recorder, Anaconda.
The Northwest Tribune, Stevensville.
Rocky Mountain Husbandman, White Sulphur Springs.

The students have also free access to the Public Library of the City of Missoula.

DEPARTMENT OF CHEMISTRY.

One laboratory is given to this subject. Its arrangement is the usual one which obtains for work in general descriptive chemistry. There are 24 working places for students, and reagent bottles for 12 students. The department is provided with Hoskins' Assay furnace, crucible furnace No. 4 and muffle No. 3, and a six gallon gasoline tank; one general analytical balance by Becker, with agate planes, and sensitive to .1 mg; and an assay balance by the same makers sensitive to 1-50 mg. There are also other pieces of quantitative apparatus, such as burettes, pipettes, and a few graduated vessels. The Dangler burners are used as the general source of heat in the Chemical Laboratory, and are an excellent substitute for gas. Adjoining the Chemical Laboratory is a store room which is being used to a considerable extent as a quantitative laboratory.

The amount and variety of work called for in the department of Chemistry is more than was anticipated. The department has been called upon to do a good deal of quantitative work from the first, in the way of general assaying; and also to make some water analyses. We believe general determinations of various kinds to be a part of the legitimate work of the Chemical Department of the State University.

DEPARTMENT OF PHYSICS.

The equipment in this department, although a modest one, has been much appreciated. Besides many other pieces of apparatus with which this department is sup-

plied, we note especially the apparatus for the subjects of light and electricity. The University has the best projection apparatus with accessories, that is manufactured in America, and it is not surpassed by the best European makers. This projection apparatus consists of a Stereopticon by J. B. Colt & Co. of N. Y., with microscope, polariscope and vertical attachments, also attachments for projecting the spectrum. This stereopticon can be converted at moment's notice into a calcium light, sunlight, or electric light apparatus. With it we are able to throw upon a screen ordinary lantern transparencies, anything which the ordinary powers of the microscope can reveal, galvanometer deflections, and other physical apparatus, and also all ordinary chemical reactions. Other accessories in our possession, such as Nichol prisms, tourmaline plates, glass tank with graduated arc for refraction and total reflection, achromatic prisms, etc., in connection with the projection apparatus above described, enable us to demonstrate the successive steps in the development of the undulatory theory of light.

For electricity and magnetism besides many minor pieces of apparatus, the equipment contains some very good testing and measuring instruments:—namely, a static galvanometer, and thermo-pyle for the detection of very slight variations in temperature. This galvanometer is wound with one coil of low, and one coil of high resistance, and as it is also differential, it admits of a wide range of work in measuring resistance and electromotive force of circuits. There is a sine and tangent galvanometer with sliding compass box, manufactured by Queen & Co., this is a standard instrument, and it is also wound with coils of high and low resistance. There is a reflecting galvanometer, with lamp and reading scale, and one dead-beat and ballistic galvanometer, not affected by the proximity

of masses of iron. Besides these galvanometers there is a standard Wheatstone bridge and resistance box, correct to 1.5 per cent, a standard slide-wire meter bridge, and Clark's standard cells, and also shunts for galvanometers.

Besides the above necessary testing and measuring instruments, the department is supplied with a Wheatstone bridge and resistance set of simpler construction, for students just beginning work in electrical measurement.

For magnetism there are large diamagnetic apparatus, dipping needle, electrometer and magnetometer, and various other smaller pieces of apparatus. For frictional electricity there is an excellent 26-inch Toepler Holtz machine.

The equipment also includes one of E. S. Ritchie's best automatic valve air pumps. This pump has stood the test, in the laboratory of the University, of producing a vacuum represented by a barometric difference of only 1 millimeter.

An Atwood machine for determining the laws of accelerated motion has been supplied for this department, also specific gravity balances after Jolly and Mohr.

BIOLOGICAL LABORATORY.

This department has, besides the usual equipment of dissecting tables, etc., some very excellent microscopes obtained from Leitz of Wetzlar, Germany. One of these stands is the best made by these well known makers, and has the following accessories:—three eye pieces, a series of five objectives, one being a one-twelfth oil emersion. It has also a revolving stage, with substage condenser after Abbe, and the Iris diaphragm. It has eye and stage micrometers, and accessory Nichol prisms for polarization, and also a camera lucida after Abbe.

Besides the above described microscope, this labora-

tory is also provided with the large dissecting microscope after the same makers; and also two student's microscopes with rack and pinion and micrometer adjustments, two eye pieces, and three objectives each. There is also in this department a camera for photo-micrography, a complete set of staining fluids, glass slips and covers, a student's microtome after Bausch and Lomb, Anthony's copying, reducing, and enlarging camera, with accessories for making lantern transparencies. For the purpose of physiology this department has been supplied with an articulated skeleton. As there is material for mounting microscopic slides, these slides can be prepared from time to time; and a few have already been added to the equipment of this department.

For the purposes of illustration in Botany, about five hundred botanical specimens have been contributed nearly all being representative of the flora of Montana.

Consistent with the suggestion of Supt. Hamilton of the State Board of Education, and with the recommendation of the Board, application was made to the Secretary of the National Museum at Washington for duplicate specimens of minerals, sea invertebrates, fishes and plants. Up to this time, the department has received from the National Museum ninety-nine land and water invertebrates, and one hundred and five fishes, both salt and fresh water specimens. The above are nearly all alcohol specimens.

Besides the above gift, there was also donated by the National Museum to the Museum of the University a set of ninety-eight rock and mineral specimens.

The museum is receiving almost daily additions of mineral specimens, principally from Montana, but some from other portions of the country.

It is most earnestly requested that all who are interested in the University, and especially in the preservation of

valuable material for scientific work, should take special pains to contribute to this department. Time and circumstances are fatal to nearly all specimens, but being properly cared for and placed in the museum of the University they will be preserved.

THE COBBAN COLLECTION.

Mr. Robert Cobban has kindly placed in the museum for the use of the University a very fine collection of minerals.

This collection is a valuable one, especially in the variety of representative minerals which it contains; and it will be of great service in Mineralogy.

MOUNTED SPECIMENS.

The University is also indebted to Mr. Charles Emsley and Mr. L. D. Tracy, of Missoula, for the beginning of a collection of mounted specimens of animals.

DEPARTMENT OF MECHANICAL ENGINEERING.

There have been provided for the use of students in Mechanical Drawing, six drawing tables. These accommodate two students each, and each contain four drawers provided with lock and key. Each table holds two drawing boards 36x25 inches.

WOOD SHOP.

A part of the basement of the University building is used for this purpose. It is well lighted and ventilated and contains 24 ft. by 52 ft. of floor space. It affords room for eight benches arranged for two students to work at each bench. Each bench is supplied with two sets of tools.

Each set of tools contains:

- (1) 6" square, try and mitre combined.
- (1) 8" bevel, (sliding.)
- (2) 8" marking gauges.
- (1) Scriber.
 - Firmer chisels (8 in the set.)
 - Gauges (4 in the set.)
- (1) 22" cross-cutting saw.
- (1) 24" ripping saw.
- (1) 8" drawing knife.
- (1) Fore plane.
- (1) Jack plane.
- (1) Smooth plane.
- (1) Set of auger bits.
- (1) Bit brace.
- (1) Set of brad awls.
- (1) Carpenters hammer.
- (1) Mallet.
- (1) Nail set.

These are kept in lockers, each student having one set which he is to care for and use. Besides these, the shop contains the following tools which are for general use.

- 1 Framing square.
- 1 Beading plane.
- 1 Mitre box.
- 1 Matching plane.
- 1 Wood plow.
- 1 Grindstone and several oil stones.

Every available inch of space in the University building being already in use, Messrs. Northquist and Jackson of the Missoula Iron Works, have tendered to the University the use of their Foundry and Machine works for instructional purposes.

Having the use of their excellent equipment of machinery and other necessary appliances, the department will at once be able to put in operation its entire course of work, including the molding, the casting, and the machine work in iron and steel.

ASSAYING.

The University offers a special course in assaying to students prepared to undertake the work. Thus far a number of students have availed themselves of this opportunity with much profit to themselves.

The aim is to make the work in this department practical, and to accomplish this end, it is insisted that the study of general chemistry shall accompany the students practice work in reducing and fluxing ores. The students in this department, besides making the ordinary fire assays, have the privilege of a course in general chemistry, including qualitative analysis; and also quantitative determinations in the wet way of such compounds and elements as the practical assayer is usually called upon to determine.

DEPARTMENT OF LATIN AND GREEK.

This department is supplied with a set of Kiepert's Classical Maps; with Cybulski's colored wall charts; and a carefully chosen collection of lantern slides and mounted photographs for the illustration of Greek and Roman Archaeology and Private Life.

The library is supplied with the most important and essential works of reference for this department.

COLLEGIATE DEPARTMENTS OF INSTRUCTION.

Note—Roman numerals indicate the number of the course; Arabic, indicate the number of recitations per week. Courses extend through one semester.

COURSES OF STUDY IN THE DEPARTMENT OF HISTORY

LITERATURE, AND PHILOSOPHY.

HISTORY.

- I. Ancient and Mediaeval History. 3.
- II. Modern European History. 3.
- III. The History of England and the English Constitution. 4.
- IV. American History, with especial reference to the development of Political, Social, and Industrial Institutions. 4.
- V. Studies in Ancient History, including the Kingdoms of the East, Egyptian Civilization, the Grecian States, and the Roman Empire.
- VI. The History of Civilization in Modern Europe.

LITERATURE.

- I. Rhetoric—Exercises in Writing, Criticism of Themes. 4.
- II. Rhetoric—Lectures and Recitations. Theme writing and criticism continued as in course I. 4.
- III. English Literature—Lectures, Readings from representative Authors. Text-book: Minto's Manual of English Prose. 4.
- IV. Theme study of some typical selections from Chaucer, Shakespeare, Browning, and Emerson. 4.
- V. The English Drama—Its origin, structure, and development.
- VI. English Literary Criticism—The reading and critical study of such authors as Jonson, Sidney, and Dryden, with reference to their literary theories and opinions.

PHILOSOPHY.

- I. The Elements of Psychology—Especial prominence will be given to the practical phases of the subject as relates to Mind Culture. 3.
- II. Ethics—Lectures and Recitations.—An attempt will be made to apply the scientific method to the investigation of the right in human conduct and individual relation. 2.
- III. History of Philosophy. 4.

POLITICAL ECONOMY.

I. The Elements of Political Economy—The subject will be treated from the historical standpoint, and especial attention will be given to those subjects which directly relate to the industrial, social, and practical life of the people.

The instruction aims to train the student in probable reasoning; and to guard him against hasty generalization in those departments of the science where facts are not well determined and known. 4.

COURSES IN SCIENCE.

PHYSICS.

- I. General Lectures—Mechanics, Heat, Electricity, Magnetism, Acoustics, and Optics. 3.
- II. Continuation of Course I. 3.
- III. A Course in Laboratory Practice—The Theory and Methods of Physical Measurements. Must be preceded by Course I. The equivalent of Stewart & Gee, Vol. I. 4.
- IV. Electricity and Magnetism—Measurements and Application to the Industries. 4.
- V. Mathematical Physics—Fundamental Equations of Theoretical Physics. Mathematical theory of sound, light, and electricity.

CHEMISTRY.

- I. Descriptive Inorganic Chemistry; Lectures, Text Book and Laboratory Work. 4.
- II. Qual. Analysis, Lectures on Elementary Organic Chemistry with Laboratory Work. 4.

III. Advanced Inorganic Chemistry, Preparation of Commercial Compounds, etc., Organic Chemistry, Preparation and Study of Organic Compounds. Must be preceded by courses I and II.

IV. Quantitative Analysis—Volumetric and Gravimetric and applications to the analysis of ores, crude metals, slags, and technical products.

V. Course IV continued to include blowpipe analysis and assaying. Must be preceded by Courses I. and II.

MINERALOGY.

I. Lectures and Recitations—Characteristics of the different minerals, determinative mineralogy, the application of chemical tests, of blowpipe analysis, laboratory work. 3.

GEOLOGY.

I. Physiographic, Lithological, and Dynamical Geology—Lectures and recitations, identification of rocks. 5.

II. Historical Geology—The succession of the rocks of the globe; the records they contain as to the successive conditions of the earth, the changes in its oceans, continents, climate, life. Must be preceded by a course in Botany and Zoology. 5.

III. Economic Geology—A consideration of the topics usually classified under this subject.

BIOLOGY.

I. General Biology—Introductory to Botany, Zoology, and advanced Physiology. Lectures and laboratory work. Required as a preliminary to all advanced work in this department. 4.

II. Course in Botany, should be preceded by course in General Biology—Anatomy and histology of plants, the elements of vegetable physiology, and the principles of morphology and classification. Special attention to the flora of the region. 4.

III. Physiology—Must be preceded by Courses I. and II. in Physics and by course in General Chemistry.

IV. Animal Histology—Open to those taking Course III.

V. Zoology, Invertebrate—A general course in the morphology and classification of Invertebrates. For illustrative material in this department the University has secured a collection of sea Invertebrates from the National Museum.

VI. Vertebrate Zoology—Accompanied by dissections of typical vertebrates. Invertebrate Zoology will also be taught by dissections and laboratory work so far as material can be had.

DEPARTMENT OF MATHEMATICS.

The subjects in Mathematics required of all students are Geometry and Trigonometry. In addition to these, students in the Scientific Course must take Higher Algebra; and students in the Engineering Course, Higher Algebra, Analytical Geometry, and Differential and Integral Calculus. For elective work see "Courses in Mathematics." Courses must be taken in the order given; except that students may elect the Calculus without having had the Analytical Geometry.

COURSES IN MATHEMATICS.

- I. Geometry. 5.
 - II. Trigonometry. 5.
 - III. Higher Algebra. Indeterminate Co-efficients, Loci of Equations, Horner's Method of Approximation, Series, etc. 5.
May be elected by students in Classical and Philosophical Courses.
 - IV. Analytical Geometry. 5.
 - V. Differential and Integral Calculus. 3.
 - VI. Differential and Integral Calculus. 3.
- Courses IV, V, and VI, may be elected by students in Classical Course in Senior year, and by students in Philosophical and Scientific Courses in either Junior or Senior year.

THE DEPARTMENT OF LATIN AND GREEK.

GENERAL INFORMATION.

1. The primary aims of this department are the acquisition of such a mastery of the languages as to enable the student to read them with some degree of facility, to read the greatest possible amount of the best Greek and Roman literatures, and to make the work subservient to general culture in the English language and literature.

The scope of this department is conceived to include, not only the study of the language and literature of the ancient Greeks and Romans, as narrowly defined, but also some attention to all phases of their civilization. Without this broader view, some of the most important results of classical studies cannot be attained. For this reason, the study of the arts, institutions, and life of the Greeks and Romans will be given due prominence; and provision has been made for this part of the work.

2. In the required courses, the study of grammar will be pursued in connection with the reading, not as an end in itself, but as a means of intelligently reading the language, with or without translation. The more systematic and scientific study of grammar will be provided for in elective courses.

3. In connection with the prose reading, exercises in writing Latin and Greek, based upon the texts read, will be used. The training in syntax will be largely given in connection with this work.

4. There will be almost daily practice in reading and translating at sight, generally from that portion of the text assigned for the next day's reading.

5. "Bennett's Latin Grammar" and "Hadley-Allen's Greek Grammar" will be used for the ordinary class room work. Editions of the texts read will be chosen as far as possible from those which have references to these grammars. Students are advised to bring with them any Latin and Greek text books they may have; but not to purchase books before definite directions are given. The most essential aids for study, such as maps, charts, and works of reference, are provided by the University.

6. The work of the college courses outlined below will be advanced as fast as it seems practicable to advance the requirements for admission, and should not be regarded as presenting the ultimate standard or ideal.

COURSES IN LATIN.

- I. VERGIL'S AENEID—First three books, elements of prosody. 4.
- II. VERGIL'S AENEID—Books IV., V., and VI. 4.
- III. HORACE—First half, selected odes. 4.
CICERO—Second half, essays, letters.
- IV. LIVY AND TACITUS—Selections. 4.
- V. HORACE—First half, selected Satires and Epistles. 4.
PLAUTUS AND TERENCE—Second half, one play from each.
- VI. Private Life of the Romans. Descriptive, no knowledge of Latin required for this course, open to all students. 4.
- VII. Rapid Reading Course, selected from Latin poetry. 4.
- VIII. Rapid Reading Course, selected from Latin prose. 4.
- IX. Roman Archaeology, elective in last semester of Senior Year open to all students. 2.

COURSES IN GREEK.

- I. A FIRST GREEK BOOK; elements of Greek grammar. 5.
- II. FIRST BOOK OF ANABASIS; sight reading; writing Greek; study of Grammar in connection with the reading and writing. 5.
- III. ANABASIS continued; sight reading; writing Greek; grammar with topical outlines. 4.
- IV. HOMER'S ILIAD, selections. 4.
- V. HOMER CONTINUED—First half, selections from Iliad and Odyssey. 4.
HERODOTUS AND THUCYDIDES—Second half, selections.
- VI. PLATO—First half, selections. 4.
DEMOSTHENES—Second half, selections.
- VII. GREEK DRAMATISTS—One play each from Aeschylus, Sophocles, and Euripides, selections from Aristophanes. 4.
- VIII. GREEK ARCHAEOLOGY, elective in first semester of Senior Year, open to all students. 3.
- IX. PRIVATE LIFE OF THE GREEKS—Descriptive, no knowledge of Greek required for this course, open to all students. 4.

DEPARTMENT OF MODERN LANGUAGES,

COURSES IN GERMAN.

I. and II. This first year is devoted to the study of Grammar (Joyne's Meissner), and Joyne's German Reader. 5.

III. and IV. During this year a select course of reading is followed with exercises in composition and conversation. Essays in the German language. 4.

V. and VI. (Elective Junior year)

Reading of German Classics and scientific monographs. Recitations will be required to be made in the German language. Essays will be required during this year. 5.

COURSES IN FRENCH.

I. and II. This first year is devoted to French Grammar (Chardenal's Complete Course); Reading (3 Contes Choises, Daudet; Merclnies, Colomba, etc.) 5.

III. and IV. Readings; translations of various selections from classical and modern writers, with a study of syntax, idioms, etc., and with exercises in conversation and compositions. Essays in French are required. 4.

V. and VI. (Elective Junior Year)

Reading of French Classics and scientific writings; Recitations in the French language. Essays in French will be required.

SCIENTIFIC FRENCH.

The primary object of this course is to give the student a reading knowledge of the language.

I. Grammar (Edgren's), Bercy's Reader, after which Herdlers Scientific French Reader will be used. This course is required by the students in the school of Mechanical Engineering.

COURSES IN SPANISH.

A 2 years course in Spanish has been laid out.

I. and II. (Elective Junior Year)

Devoted to the study of Grammar, with some easy reading and translations from Modern prose.

III. and IV. (Elective Senior Year)

Reading of Spanish Classics; study of Spanish literature; study of syntax and idioms; exercises in composition and conversation.

Recitations required in the Spanish language in the second semester.

SCHOOL OF MECHANICAL ENGINEERING.

This department makes a specialty of those technical branches belonging to Engineering; and furnishes a systematic and progressive education in the use of tools, machinery and materials, combined with as much theoretical instruction as will furnish a thorough knowledge of the principles involved. The description of work given below includes the special work required in this department only. For the general work of this department and the arrangement of the work in years see tabular statement of the Mechanical Engineering Course.

DRAWING.

Drawing commences in the Preparatory year and continues throughout the college course. Instruction in Free Hand Drawing is given in the Preparatory year. It includes drawing from copy and model perspective, drawing from objects, and free hand sketches of machinery. These sketches will be used for instrumental drawing later in the course. The work in the Freshman and Sophomore years consists of drawing from copies and models, and practice in drawing sections of various parts of machines such as screw-threads, etc.

In the Junior year drawings for use in the pattern shop will be required. These consist of free hand sketches of machinery, drawn to scale in the drawing room and making a full working drawing that can be used in the shops.

In the Senior year, the work required will be the designing of engines and machinery,—the students original idea in the building of special machinery will then be brought out. Lettering, symbolic hatching, line shading, tinting, tracing, and blue printing receive attention during the course.

SHOP WORK.

Shop practice begins in the second term of the Freshman year. During the first term, lectures in wood working machinery are given. Goss' Bench Work in Wood is used as a text to familiarize the student with the uses and the care of carpenter's tools. During the second semester, the knowledge thus gained is put to practice in the wood working shop.

The course in the Wood Shop will consist of exercises, such as sawing, planing, joining, splicing mortising, dovetailing, framing, and paneling. All the operations of carpentry are thus taught. These exercises are followed by those in turning. The course laid out will begin in the 1st semester of the Sophomore year, and will consist of exercises in the turning of wood, such as cylinders, beads, and cups to a given size, and exercises which involve the use of chucks and face plates. When the student has completed this course in turning, he will take up pattern making, moulding, and casting, the drawings for this having been made in the drawing room by the students. Lectures in pattern making, moulding, and casting will be given during the 2d semester of the Freshman year. The 2d semester of the Sophomore will be taken up in bench work or vise work in iron, such as filing, chipping, key fitting, etc., both in iron and steel. After these exercises will come machine work, such as turning screw threads of certain pitch, turning cylinders, boring, planing, and the common exercises in this line of work. Students will be required to forge their own tools, grind them and keep them in good order.

The special courses of this department are the following:
(As elsewhere courses extend through one semester unless otherwise stated.)

Mechanical Drawing.

Courses I, II, III, IV. 4.

Courses V, VI, VIII. 6.

Courses VII. 10.

Lectures in Wood Work. 2, 15 weeks.

Lectures in Pattern Making.

Lectures in Molding and Casting. 3, 10 weeks.

Laboratory Practice.

Courses I, II, III, IV. 6.

Courses V, VI. 4.

Descriptive Geometry. 5, 8 weeks.

Steam Boilers. 3, 12 weeks.

Analytical Mechanics. 5.

Elements of Mechanics. 5.

Metallurgy. 3, 10 weeks.

Steam Engine. 2, 10 weeks.

Hydraulics. 3, 10 weeks.

Strength of Material. 5.

Thesis Work (Laboratory). 4.

COLLEGIATE COURSES OF STUDY.

Beginning with the college year of 1896-7, the University will offer the following general courses of instruction:

A.—A Classical course, leading to the Degree of A. B.

B.—A Philosophical course, leading to the Degree of B. Ph.

C.—A General Science course, leading to the Degree of B. S.

A course in Mechanical Engineering Leading to the degree of B. M. E.

The work of the year will be divided into two equal Semesters. For convenience in classification, the work of each department of study will be divided into courses and fractional courses. One course shall mean the equivalent

of one hour's lecture or recitation five times a week for one semester. Two hours of laboratory work will count the same as one of lecture or of recitation. In the absence of any definite statement the Faculty reserves the right to prescribe the order in which the different courses shall be taken. Twenty-six full courses as here defined are required for graduation in any of the departments of the University. A student's choice of elective work is subject to the approval of the Faculty, which reserves the right of refusing to give any elective course for which there are less than three approved applicants.

ADMISSION TO COLLEGIATE COURSES.

Candidates for admission to any of the collegiate Courses of the University must be at least sixteen years old and present satisfactory evidence of good moral character.

Those who have been members of other Colleges and Universities must bring certificates of honorable dismissal.

For admission to the courses leading to the degree of A. B., Ph. B., and B. S., the applicant must present the equivalent of the following courses found in the Preparatory Department. (See pages 43-45.)

Mathematics—Courses I, II, III, IV.

Latin—Courses I, II, III, IV.

English—Courses I, II, III, IV.

Science—Course II.

History and Civics—Courses I, II.

For admission to the course in Mechanical Engineering

Mathematics—Courses I, II, III, IV.

English—Courses I, II, III, IV.

History and Civics—Courses I, II.

Drawing—Courses I, II.

GRADUATION AND DEGREES.

In order to secure the recommendation of the faculty for graduation from the University in any of the respective lines of work that have been outlined, it will be necessary that the student complete the equivalent of twenty-six full courses as already defined in the section concerning collegiate courses.

That the needs and special inclinations of the different students may be consulted as far as possible, certain of these courses are required for each of the respective degrees and the rest are left for the students' selection.

The following is a statement of the amount of required work for the different degrees and the number of elective courses allowed.

FOR THE DEGREE OF A. B.

In Latin, I., II., III., IV., V., VI.	4	3-5	full courses
* " Greek, I., II., III., IV., V., VI., VII., IX.	6	4-5	" "
" Mathematics, I., II.	2		" "
" History, I., II.	1	1-5	" "
" Literature, III., IV.	1	3-5	" "
" Political Economy, I.		4-5	" "
" Psychology and Ethics, I., II.	1		" "
" Physics, I., II.	1	1-5	" "
" Chemistry, I.		4-5	" "
" Biology, II.		4-5	" "
Electives	5	1-5	" "
Total	26		" "

* See statement in tabular view of courses beyond.

FOR THE DEGREE OF B. PH.

In Latin, I., II., III., VI.	3	full courses
" Greek, IX. Descriptive course	4-5	" "
" German, I., II., III., IV.	3	3-5 " "
" History, I., II., III., IV.	2	4-5 " "
" Literature, III., IV.	1	3-5 " "
" Political Economy, I.		4-5 " "
" Psychology and Ethics, I., II.	1	" "
" Physics, I., II.	1	1-5 " "
" Chemistry, I.		4-5 " "
" Biology, II.		4-5 " "
" Mathematics, I., II.	2	" "
Electives	7	3-5 " "
Total	26	" "

of one hour's lecture or recitation five times a week for one semester. Two hours of laboratory work will count the same as one of lecture or of recitation. In the absence of any definite statement the Faculty reserves the right to prescribe the order in which the different courses shall be taken. Twenty-six full courses as here defined are required for graduation in any of the departments of the University. A student's choice of elective work is subject to the approval of the Faculty, which reserves the right of refusing to give any elective course for which there are less than three approved applicants.

ADMISSION TO COLLEGIATE COURSES.

Candidates for admission to any of the collegiate Courses of the University must be at least sixteen years old and present satisfactory evidence of good moral character.

Those who have been members of other Colleges and Universities must bring certificates of honorable dismissal.

For admission to the courses leading to the degree of A. B., Ph. B., and B. S., the applicant must present the equivalent of the following courses found in the Preparatory Department. (See pages 43-45.)

Mathematics—Courses I, II, III, IV.

Latin—Courses I, II, III, IV.

English—Courses I, II, III, IV.

Science—Course II.

History and Civics—Courses I, II.

For admission to the course in Mechanical Engineering

Mathematics—Courses I, II, III, IV.

English—Courses I, II, III, IV.

History and Civics—Courses I, II.

Drawing—Courses I, II.

GRADUATION AND DEGREES.

In order to secure the recommendation of the faculty for graduation from the University in any of the respective lines of work that have been outlined, it will be necessary that the student complete the equivalent of twenty-six full courses as already defined in the section concerning collegiate courses.

That the needs and special inclinations of the different students may be consulted as far as possible, certain of these courses are required for each of the respective degrees and the rest are left for the students' selection.

The following is a statement of the amount of required work for the different degrees and the number of elective courses allowed.

FOR THE DEGREE OF A. B.

In Latin, I., II., III., IV., V., VI.	4	3-5	full courses
* " Greek, I., II., III., IV., V., VI., VII., IX.	6	4-5	" "
" Mathematics, I., II.	2		" "
" History, I., II.	1	1-5	" "
" Literature, III., IV.	1	3-5	" "
" Political Economy, I.		4-5	" "
" Psychology and Ethics, I., II.	1		" "
" Physics, I., II.	1	1-5	" "
" Chemistry, I.		4-5	" "
" Biology, II.		4-5	" "
Electives	5	1-5	" "
		<hr/>	
Total	26		" "

* See statement in tabular view of courses beyond.

FOR THE DEGREE OF B. PH.

In Latin, I., II., III., VI.	3	full courses
" Greek, IX. Descriptive course.	4-5	" "
" German, I., II., III., IV.	3	3-5 " "
" History, I., II., III., IV.	2	4-5 " "
" Literature, III., IV.	1	3-5 " "
" Political Economy, I.		4-5 " "
" Psychology and Ethics, I., II.	1	" "
" Physics, I., II.	1	1-5 " "
" Chemistry, I.		4-5 " "
" Biology, II.		4-5 " "
" Mathematics, I., II.	2	" "
Electives	7	3-5 " "
		<hr/>
Total	26	" "

FOR THE DEGREE OF B. S.

In Latin, I., II.	1 3-5	full courses	
" Mathematics, I., II., III.	3	"	"
" German, I., II., III., IV.	3 3-5	"	"
" History, I., II.	1 1-5	"	"
" Literature, III., IV.	1 3-5	"	"
" Political Economy, I.	4-5	"	"
" Psychology and Ethics, I and II.	1	"	"
" Chemistry, I., II.	1 3-5	"	"
" Physics, I., II., III., IV.	2 4-5	"	"
" Biology, I., II.	1 3-5	"	"
" Geology, I.	1	"	"
" Mineralogy, I.	3-5	"	"
Electives	5 3-5	"	"
Total	26	"	"

FOR THE DEGREE OF B. M. E.

In Mathematics, I., II., III., IV., V., VI.	5 1-5	full courses	
" Scientific French, I.	4-5	"	"
" History, I., II.	1 1-5	"	"
" Political Economy, I.	4-5	"	"
" Chemistry, I., II.	1 3-5	"	"
" Physics, I., II.	1 1-5	"	"
" Metallurgy, I.	2-5	"	"
Total	11 1-5	"	"

For the technical work required in this course see page 31 in tabular statement.

THE CLASSICAL COURSE.

Roman numerals indicate courses; Arabic, hours per week.

FRESHMAN YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Geometry, I. 5.	Trigonometry, II. 5.
History, I. 3.	History, II. 3.
Latin, I. 4.	Latin, II. 4.
*Greek, I. 5.	Greek, II. 5.

SOPHOMORE YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Higher Algebra, III. 5, or Rhetoric, I. 4.	Botany, II. 4, or Rhetoric, II. 4
Latin, III. 4.	Latin, IV. 4.
Greek, III. 4.	Greek, IV. 4.
Physics, I. 3.	Physics, II. 3.

JUNIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Latin, V. 4.	Roman Life, VI. 4.
Greek, V. 4.	Greek, VI. 4.
English Literature, III. 4.	English Literature, IV. 4.
Chemistry, I. 4.	Chemistry, II. 4, or Latin, VII. 4

SENIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Greek, VII. 4.	Greek Life, IX. 4.
Ethics, II. 2.	Political Economy, I. 4.
Psychology, I. 3.	Electives, 2 courses.
Electives, 2 courses.	

* The following substitutes will be allowed: For Freshman and Sophomore, German or French; for Junior, History III., IV.; for Senior year any approved elective. Those who take Greek in Freshman year are expected to continue it at least two years.

FOR THE DEGREE OF B. S.

In Latin, I., II.	1 3-5	full courses	
“ Mathematics, I., II., III.	3	“	“
“ German, I., II., III., IV.	3 3-5	“	“
“ History, I., II.	1 1-5	“	“
“ Literature, III., IV.	1 3-5	“	“
“ Political Economy, I.	4-5	“	“
“ Psychology and Ethics, I and II.	1	“	“
“ Chemistry, I., II.	1 3-5	“	“
“ Physics, I., II., III., IV.	2 4-5	“	“
“ Biology, I., II.	1 3-5	“	“
“ Geology, I.	1	“	“
“ Mineralogy, I.	3-5	“	“
Electives	5 3-5	“	“
Total	26	“	“

FOR THE DEGREE OF B. M. E.

In Mathematics, I., II., III., IV., V., VI.	5 1-5	full courses	
“ Scientific French, I.	4-5	“	“
“ History, I., II.	1 1-5	“	“
“ Political Economy, I.	4-5	“	“
“ Chemistry, I., II.	1 3-5	“	“
“ Physics, I., II.	1 1-5	“	“
“ Metallurgy, I.	2-5	“	“
Total	11 1-5	“	“

For the technical work required in this course see page 31 in tabular statement.

THE CLASSICAL COURSE.

Roman numerals indicate courses; Arabic, hours per week.

FRESHMAN YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Geometry, I. 5.	Trigonometry, II. 5.
History, I. 3.	History, II. 3.
Latin, I. 4.	Latin, II. 4.
*Greek, I. 5.	Greek, II. 5.

SOPHOMORE YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Higher Algebra, III. 5, or Rhetoric, I. 4.	Botany, II. 4, or Rhetoric, II. 4
Latin, III. 4.	Latin, IV. 4.
Greek, III. 4.	Greek, IV. 4.
Physics, I. 3.	Physics, II. 3.

JUNIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Latin, V. 4.	Roman Life, VI. 4.
Greek, V. 4.	Greek, VI. 4.
English Literature, III. 4.	English Literature, IV. 4.
Chemistry, I. 4.	Chemistry, II. 4, or Latin, VII. 4

SENIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Greek, VII. 4.	Greek Life, IX. 4.
Ethics, II. 2.	Political Economy, I. 4.
Psychology, I. 3.	Electives, 2 courses.
Electives, 2 courses.	

* The following substitutes will be allowed: For Freshman and Sophomore, German or French; for Junior, History III., IV.; for Senior year any approved elective. Those who take Greek in Freshman year are expected to continue it at least two years.

THE PHILOSOPHICAL COURSE.

Roman Numerals indicate courses; Arabic, hours per week.

FRESHMAN YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Geometry, I. 5.	Trigonometry, II. 5.
History, I. 3.	History, II. 3.
Latin, I. 4.	Latin, II. 4.
German, I., or French, I. 5.	German, II., or French, II. 5.

SOPHOMORE YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Higher Algebra, III. 5, or Rhetoric, I. 4.	Botany, II. 4, or Rhetoric, II. 4.
Latin, III. 4.	Roman Life, VI. 4.
German, III., or French, III. 4.	German, IV., or French, IV. 4.
Physics, I. 3.	Physics, II. 3.

JUNIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
History, III. 4.	History, IV. 4.
English Literature, III. 4.	English Literature, IV. 4.
Chemistry, I. 4.	Chemistry, II., or Latin, IV. 4.
Elective, one course.	Elective, one course.

SENIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Ethics, II. 2.	Greek Life, IX. 4.
Psychology, I. 3.	Political Economy, I. 4.
History of Philosophy, III. 4.	Electives, two courses.
Electives, two courses.	

THE SCIENTIFIC COURSE.

Roman Numerals indicate courses; Arabic, hours per week.

FRESHMAN YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Geometry, I. 5.	Trigonometry, II. 5.
History, I. 3.	History, II. 3.
Latin, I. 4.	Latin, II. 4.
German, I., or French, I. 5.	German, II., or French, II. 5.

SOPHOMORE YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Higher Algebra, III. 5.	Laboratory Biology, 4.
German, III., or French, III. 4.	German, IV., or French, IV. 4.
Biology, I. 4.	Botany, II. 4.
Physics, I. 3.	Physics, II. 3.

JUNIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Advanced Physics, III. 4.	Advanced Physics, IV. 4.
Chemistry, I. 4.	Chemistry, II. 4.
English Literature, III. 4.	English Literature, IV. 4.
Elective, one course, 4.	Electives, one course, 4.

SENIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Ethics, II. 2.	Political Economy, I. 4.
Psychology, I. 3.	Geology, I., II. 5.
Mineralogy, I. 3.	Two electives, 4 each.
Two Electives, 4 each.	

THE MECHANICAL ENGINEERING COURSE.

Roman Numerals indicate courses; Arabic, hours per week.

FRESHMAN YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Geometry, I. 5.	Trigonometry, II. 5.
History, I. 3.	History, II. 3.
* Mechanical Drawing, I. 4.	Mechanical Drawing, II. 4.
Lectures on Wood work, 2, 15 wks	Pattern Making, 3, 10 weeks.
* Laboratory Practice, I. 6.	Laboratory Practice, II. 4.

SOPHOMORE YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Higher Algebra, III. 5.	Analytical Geometry, IV. 5.
Mechanical Drawing, III. 4.	Mechanical Drawing, IV. 4.
Descriptive Geometry, 5, 8 weeks	Scientific French, 4.
Physics, I. 3.	Physics, II. 3.
Laboratory Practice, III. 6.	Laboratory Practice, IV. 6.

JUNIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Calculus, V. 3.	Calculus, VI. 3.
Steam Boilers, 3, 12 weeks.	Analytical Mechanics, 5.
Graphical Statics, 2.	Chemistry, II. 4.
Chemistry, I. 4.	Drawing, VI. 6.
Drawing, V. 6.	Laboratory Practice, VI. 4.
Laboratory Practice, V. 4.	

SENIOR YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Elements of Mechanics, 5.	Political Economy, I. 4.
Metallurgy, 3, 10 weeks.	Hydraulics, 3, 10 weeks.
Steam Engine, 2, 10 weeks.	Drawing, VIII. 6.
Drawing, VII. 10.	Strength of Materials, 5.
	Thesis Work (Laboratory), 4.

* Two hours Drawing and Laboratory practice count as one of lecture and recitation work.

STUDENTS ENROLLED.

JESSIE AMBROSE	Missoula.
HENRI AMIRAUX	Missoula.
CHARLES AVERY	Stevensville.
WILLIAM BAILEY	Missoula.
LILLIAN BEAUCHAINE	Missoula.
EMMA BECKWITH	Missoula.
ZOE BELLEW	Missoula.
EDITH BICKFORD	Missoula.
CORAL BLAISDELL	Missoula.
HAROLD BLAKE	Fort Missoula.
LENITA BONNER	Missoula.
EDWARD BOOS	Missoula.
CHARLOTTE BOOS	Missoula.
MOLLIE BOOTH	Missoula.
JESSIE BOOTH	Missoula.
NELLIE BOYD	Phillipsburg.
IDA BRANDIS	Gibbonsville, Idaho.
GERTRUDE BUCKHOUSE	Fort Missoula.
BOOTH BURCH	Darby.
LYNDE CATLIN	Missoula.
J. T. COUGHENOUR, M. D.	Corvallis.
JOHN F. COX	Duluth, Minn.
MARY AMANDA CRAIG	Missoula.
WILLIAM OSCAR CRAIG	Missoula.
GRACE CRAIN	Missoula.
FRED. CRAIN	Missoula.
CAROLINE CRONKRITE	Missoula.
BOSTIE EFFINGER	Missoula.
SOPHIA EVANS	Deer Lodge.
GEORGINA FENWICK	Bonner.
HATTIE FERGUSON	Sand Point, Idaho.
MICHAEL FLYNN	Missoula.
MABEL GARDINER	Fort Missoula.
ELLA ROBB GLENNY	Missoula.
WILLIAM GOGERTY	Anaconda.
GERTRUDE GRANT	Grantsdale.
ANNIE RUTH GRAY	Montrose, Colorado.

EMMA HAMILTON	Missoula.
MARGARET HANSON	Missoula.
EMMA HANSON	White Sulphur Springs.
SAMUEL HARDY	Missoula.
GEORGE HARRIS	Corvalis.
ADELLA HARDING	Missoula.
ALICE HATHEWAY	Missoula.
GERTRUDE HATHEWAY	Missoula.
LOUISE HATHEWAY	Missoula.
ALICE HELMS	Helmsville.
WALTER HENKE	Missoula.
DANIEL HEYFRON	Missoula.
HILDA HIGGINS	Missoula.
ANNA HOLLENSTEINER	Lo Lo.
CARL HOBLITZELL	Missoula.
ARTHUR HOLT	Grantsdale.
JEFF HOLT	Grantsdale.
ROBERT HUNTER	Helena.
BELLA JAMIESON	Missoula.
FRANK JONES	Missoula.
THOMAS KEMP	Missoula.
MAY KEMP	Missoula.
CLARA KEITH	Missoula.
LYNN KENNEDY	Missoula.
GEORGE KENNETT	Missoula.
HELENE KENNETT	Missoula.
ELOISE KNOWLES	Missoula.
HILDA KNOWLES	Missoula.
LU KNOWLES	Missoula.
THOMAS B. LANDERS	Missoula.
NICIA LANDERS	Missoula.
JOHN LATIMER	Grass Valley
DORA LEHSOU	Missoula.
ESTHER LEISER	Missoula.
GRACE LEWIS	Deer Lodge.
BELLE LIBBY	Missoula.
AMANDA LOFFNES	Missoula.
AMELIA LOFFNES	Missoula.
MARIA LOUGHBOROUGH	Fort Missoula.
MARGARET LOUGHRIN	Philipsburg.
BERTHA LOGAN	Missoula.
FLORENCE LONG	Missoula.
NATHAN MANHEIM	Missoula.
WILLIAM MARION	Frenchtown.

CLAUDE McALLISTER.....	Missoula.
ROBERT McCAULEY.....	Fort Missoula
CHARLES McCAULEY.....	Fort Missoula.
ESTELLE McCLAIN.....	Carlton.
ALBERT McCLAIN.....	Carlton.
HENRY McCLAIN.....	Carlton.
NORA McCORMICK.....	Missoula.
HELEN McCrackin.....	Hamilton.
HENRY McDERMOTT.....	Fort Missoula.
LYDIA MILLS.....	Lo Lo.
EDWARD MILLER.....	Fort Missoula.
WALLACE MIX.....	Missoula.
GRACE MOORE.....	Missoula.
JOSIE MORTON.....	Missoula.
WILLIAM MURPHY.....	Missoula.
ROSE MURRAY.....	Missoula.
LOIS NEWPORT.....	Bonner.
MARY OSBORNE.....	Missoula.
PHOEBE O'BRIEN.....	Helena.
THOMAS PADDEN.....	Darby.
EDNA PARSONS.....	Missoula.
FRED PEARSON.....	Missoula.
BELLE PICKENS.....	Lo Lo.
BONNIE RANCHE.....	Missoula.
ALEXANDER RALSTON.....	Butte.
JEANNETTE RANKIN.....	Missoula.
MAUDE RAKESTAW.....	Missoula.
BONNIE REED.....	Carlton.
ALICE REEVES.....	Missoula.
LLOYD REIMEL.....	Hamilton.
PERCY RENNICK.....	Hamilton.
BEULAH RHEIM.....	Missoula.
CLIFFORD RITTENOUR.....	Missoula.
HOWARD SCHROEDER.....	Missoula.
GERTRUDE SLOANE.....	Missoula.
D. C. SMITH.....	Hughesville, Mo.
BERTIE SLAUGHTER.....	Missoula.
ADALINE STEPHENS.....	Missoula.
EVA STEPHENS.....	Missoula.
LAWRENCE STEPHENS.....	Missoula.
T. G. STEWARD, D. D.....	Fort Missoula.
THEOPHILUS STEWARD.....	Fort Missoula.
GUSTAVUS STEWARD.....	Fort Missoula.
BENNIE STEWART.....	Missoula.

CYNTHIA TAYLOR	Missoula.
JESSIE THOMPSON	Missoula.
WILFORD TRUDEAU	Corvallis.
MINNIE VAUGHN	Missoula.
J. M. WASSON	Red Wing, Minn.
SIDNEY WARD	Hamilton.
GEORGE WESTBY	Missoula.
EDITH WILSON	Florence.
MINNIE WHITAKER	Missoula.
ALICE WOODY	Missoula.

Total Enrollment, 135.

THE PREPARATORY DEPARTMENT.

It is supposed that the average student will complete the work of the Preparatory Department in two years, if due diligence is employed. The arrangement of semesters and courses is just the same as in the college, except that there are no electives. Each collegiate course has its appropriate preparatory work.

COURSES OF INSTRUCTION.

MATHEMATICS.

- I. ARITHMETIC. With special attention to Fractions, Percentage, and the Metric System of Weights and Measures. First Semester. 5.
- II. ELEMENTARY ALGEBRA. Second Semester. 5.
- III. Algebra continued. First Semester. 5.
- IV. Plane Geometry. Second Semester. 5.

SCIENCE.

- I. Physiology, (Optional). 3.
- II. Physical Geography. 3.

ENGLISH.

- I. English Grammar Reviewed. 5.
- II. Grammar and Composition. 5.
- III. Rhetoric. Elements of. 5.
- IV. American Literature. 3.

LATIN.

The following general remarks are here made to avoid unnecessary repetitions under the courses outlined below.

1. The Roman pronunciation will be used. Pains will be taken to form habits of correct pronunciation. In this connection, the points to be especially emphasized are that long vowels shall be pronounced as long; also that every consonant shall be distinctly enunciated. For preparatory work it is very desirable to use texts which have the long vowels marked.

2. Bennett's grammar will be used and pupils are expected to master the elements of Latin grammar, at least as presented in the coarser print of this book.

3. In the preparation of pupils for the University courses, teachers throughout the state are earnestly requested to take pains to form habits of correct pronunciation; and to have almost daily some exercise in reading and translating at sight and in writing Latin. The importance of these points can scarcely be over-estimated.

I. A first Latin book; elements of Grammar; reading of selections from easy Latin prose. 5.

II. Caesar's Gallic War, second book (Collar's "Gate to Caesar" or a similar work will be used); sight reading; writing Latin; study of Grammar continued by references from the text read and in connection with the composition work. 5.

III. Caesar's Gallic War continued; sight reading; writing Latin, study of Grammar continued as in II. 5.

IV. Cicero's selected Orations and letters; sight reading; writing Latin; topical outlines in Grammar in addition to the work of II, and III. 5.

HISTORY.

I. U. S. History. 3.

II. Civics of the U. S. and of Montana. 3.

FREE HAND DRAWING.

I. Principles of free hand drawing. (A) From geometric solids.
(a) In outline. (b) In charcoal. 2.

II. (a) Groups of common objects, as books, vases, chairs, tables,
etc. (b) Casts of ornament. (c) Interior, as corner of a room.

Design for capital, panel, etc., and original design for surface, de-
coration in color. 2.

ADMISSION TO THE PREPARATORY.

Applicants for admission to the Preparatory Department should be at least fourteen years old, and well grounded in the elements of an English education. They must be able to pass a creditable examination in the elements of Arithmetic, Elementary Grammar, Geography, Reading, and Spelling.

THE PREPARATORY DEPARTMENT.

FIRST YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Arithmetic, I. 5.	Algebra, II. 5.
English Grammar, I. 5.	Composition, II. 5.
U. S. History, I. 3.	Civil Government, II. 3.
Latin, I. 5.	Latin, II. 5.

SECOND YEAR.

<i>First Semester.</i>	<i>Second Semester.</i>
Algebra, III. 5.	Geometry, IV. 5.
Rhetoric, III. 5.	Literature, IV. 3.
Latin, III. 5.	Latin, IV. 5.
Drawing, I. 2.	Drawing, II. 2.
Physiology, I. 3. (Optional.)	Physical Geography, II. 3.

ACCREDITED HIGH SCHOOLS.

The State Board of Education in a meeting held June 1, 1896, took the following action:

1. Candidates seeking admission to any of the regular courses in any State Educational Institutions must be at least sixteen years of age and must possess a good moral character and good bodily health.

2. Accredited Schools.—Any high school or academy whose course of instruction covers the branches requisite for admission to one or more of the courses of any State Educational Institution may be admitted to its accredited list of preparatory schools, after a satisfaction examination by a committee appointed by the State Board of Education. Application for such examination may be made by any school board to the Secretary of the State Board of Education, whereupon a committee appointed by the State Board of Education will examine the course of study and methods of instruction of the school, and on the committee's favorable recommendation, and the concurrence of the State Board of Education, it will be entered upon the accredited list of the State Educational Institution for which it applied. Any graduate of such an approved school will be received by the President of the State Educational Institution wherein said graduate is entitled to enter, on presentation of proper diploma and certificate from the Superintendent of said school, into any of the courses of said institution for which said graduate has been fitted.

Students of an accredited school who are not graduates must expect examinations as other candidates.

A school once entered upon the accredited list will remain there until its administration is changed, or until notice is given by the State Board of Education of unsatisfactory results. Upon a change of administration ap-

plication for continuation upon the list, if desired, must be made. If the work of the principal coming into charge has been recently examined in connection with some other school, a new examination may not be required, but such examination should in all cases be invited.

Annual reports will be asked for by the State Board of Education from all accredited schools.

LIST OF ACCREDITED SCHOOLS.

CITY.	SUP'T.
Helena.....	J. E. KLOCK.
Butte	F. L. KERN.
Great Falls.....	S. D. LARGENT.
Anaconda.....	M. A. STAPLETON.
Missoula	J. M. HAMILTON.

DEPARTMENT OF MUSIC.

The Department of Music in the University of Montana, is under the direction of Miss Mary Olive Gray, graduate of the New England Conservatory of Music, Boston, Massachusetts.

Instruction may be had in piano forte, voice building, harmony, theory and ensemble playing. For further information in regard to tuition, length of term and rent of instruments, address, or apply in person to Miss Gray, at the University.

Registration in the Department of Music as well as in all other Departments of the University will begin Wednesday, September 16, 1896.

MISCELLANEOUS.

CHAPEL EXERCISES.

All students are required to attend the Chapel exercises which are held every morning at 9:15 A. M. except Saturday and Sunday.

SOCIETIES.

Two literary societies, the Hawthorne and the Clarkia, are open to students. The first named society is composed of young men and the second of young women. The Y. M. C. A. has a flourishing organization and in time will exert a very salutary influence. The Athletic Association is completely organized and has a large membership of both young men and women.

PRIZES.

THE J. M. BUCKLEY ORATORICAL PRIZE.

Through the generosity of Dr. Buckley, of Missoula, the prize has been founded in memory of his father H. N. Buckley.

The amount of the prize is twenty dollars and this amount is derived from a permanent investment made to secure its endowment. The conditions of the oratorical contest at which the prize is bestowed are subject to the control of the Faculty.

FEES AND DEPOSITS.

A matriculation fee of ten dollars will be charged for admission to any of the departments of the University. This may be paid, one-half at the beginning of the first semester, and one-half at the beginning of the second.

A deposit of five dollars will be required from those taking any of the courses in chemistry. This deposit is to cover the cost of breakage, and after this is deducted the balance will be returned at the close of the semester.

EXPENSES.

There are no dormitories connected with the University, and students are expected to find rooms and board in private families. Good homes can thus be provided for all and at very reasonable rates. Expenses may be very materially lessened by the formation of boarding clubs. Students will not be allowed to board at places not approved by the Faculty.

UNIVERSITY SURROUNDINGS.

Missoula is located in Western Montana, on the main line of the Northern Pacific railroad and at its junction with the Bitter Root Valley and Coeur d'Alene branches, thus affording easy railroad connections with all parts of the state and the Northwest. The city of Missoula is noted as being one of the most beautiful in the west; and is unexcelled as regards pure water, healthful surroundings, beautiful scenery, and all of those things that contribute to make student life pleasant and agreeable.

Situated at the head of the Missoula Valley and near the outlet of the Bitter Root Valley, it is within the limits of the great agricultural and fruit growing regions of the State.